
Information Gathering

CST 270 – System Analysis & Design
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Objectives

- Discuss interactive methods for gathering information about systems from users
 - Explain the interviewing method and discuss preparation, question types, and structuring the questions in an interview
 - Discuss using questionnaires in terms of planning, question types, language, scales, design, and administering them
- Discuss unobtrusive methods for gathering information about systems
 - Explain sampling in terms of purpose, sample types, and choosing sample size
 - Discuss investigative methods including analyzing quantitative and qualitative documents and observation

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Interviewing

- Interviewing is an important method for collecting data on human and system information requirements.
- Interviews reveal information about:
 - Interviewee opinions
 - Interviewee feelings
 - Goals
 - Key HCI concerns

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Interview Preparation

- Reading background material
- Establishing interview objectives
- Deciding whom to interview
- Preparing the interviewee
- Deciding on question types and structure
 - Open ended or Closed?

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Open-Ended vs Close-Ended Questions

- Open-ended questions:
 - allow interviewees to respond how they wish, and to what length they wish
 - Are appropriate when the analyst is interested in breadth and depth of reply
- Close-ended questions:
 - limit the number of possible responses.
 - are appropriate for generating precise, reliable data that is easy to analyze.
 - The methodology is efficient, and it requires little skill for interviewers to administer.

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Probes

- Probing questions elicit more detail about previous questions.
- The purpose of probing questions is:
 - To get more meaning
 - To clarify
 - To draw out and expand on the interviewee's point
- May be either open-ended or closed

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Arranging Questions

- Pyramid
 - Starting with closed questions and working toward open-ended questions
 - useful if interviewees need to be warmed up to the topic or seem reluctant to address the topic
- Funnel
 - Starting with open-ended questions and working toward closed questions
 - Provides an easy, nonthreatening way to begin an interview
 - Is useful when the interviewee feels emotionally about the topic
- Diamond
 - Starting with closed, moving toward open-ended, and ending with closed questions
 - Combines the strengths of pyramid/funnel but takes longer

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Closing the Interview

- Always ask “Is there anything else that you would like to add?”
- Summarize and provide feedback on your impressions.
- Ask whom you should talk with next.
- Set up any future appointments.
- Thank them for their time and shake hands.

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Interview Report

- Write as soon as possible after the interview.
- Provide an initial summary, then more detail.
- Review the report with the respondent.

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Questionnaires

- Questionnaires are useful in gathering information from key organization members about:
 - Attitudes
 - Beliefs
 - Behaviors
 - Characteristics

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Planning for the Use of Questionnaires

- Organization members are widely dispersed.
- Many members are involved with the project.
- Exploratory work is needed.
- Problem solving prior to interviews is necessary.

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Question Types

Questions are designed as either:

- Open-ended
 - Try to anticipate the response you will get.
 - Well suited for getting opinions.
- Closed
 - Use when all the options may be listed.
 - When the options are mutually exclusive.

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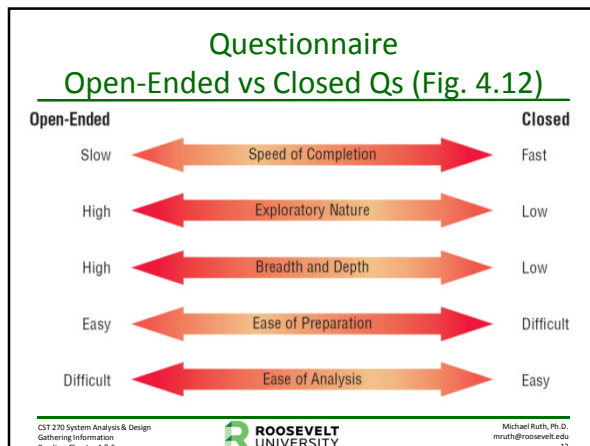
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Questionnaire Language

- Simple
- Specific
- Short
- Not patronizing
- Free of bias
- Addressed to those who are knowledgeable
- Technically accurate
- Appropriate for the reading level of the respondent

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Measurement Scales

- Two different forms of measurement scales:
 - Nominal
 - Nominal scales are used to classify things.
 - It is the weakest form of measurement
 - Data may be totaled
 - Interval
 - An interval scale is used when the intervals are equal.
 - There is no absolute zero.

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Validity And Reliability

- Reliability of scales refers to consistency in response—getting the same results if the same questionnaire was administered again under the same conditions.
- Validity is the degree to which the question measures what the analyst intends to measure.

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Problems with Scales

- Leniency
 - Caused by easy raters
 - Solution is to move the “average” category to the left or right of center
- Central tendency
 - Central tendency occurs when respondents rate everything as average.
 - Improve by making the differences smaller at the two ends.
 - Adjust the strength of the descriptors.
 - Create a scale with more points.
- Halo effect
 - When the impression formed in one question carries into the next question
 - Solution is to place one trait and several items on each page

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Designing the Questionnaire

- Allow ample white space.
- Allow ample space to write or type in responses.
- Make it easy for respondents to clearly mark their answers.
- Be consistent in style.
- Order is important:
 - Place most important questions first.
 - Cluster items of similar content together.
 - Introduce less controversial questions first.

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Administering the Questionnaire

- Convening all concerned respondents together at one time
- Personally administering the questionnaire
- Allowing respondents to self-administer the questionnaire
- Mailing questionnaires
- Administering over the Web or via email
 - storage/reduced administrative costs

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Unobtrusive Methods

- Less disruptive
- Multiple methods approach
 - Insufficient when used alone
 - Used in conjunction with interactive methods
- Three methods:
 - **sampling**
 - investigation
 - observing

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Sampling

- A process of systematically selecting representative elements of a population
- Involves two key decisions:
 - What to examine
 - Which people to consider
- Why?
 - Containing costs
 - Speeding up the data gathering
 - Improving effectiveness
 - Reducing bias

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Sampling Design

- To design a good sample, a systems analyst must follow four steps:
 - Determining the data to be collected or described
 - Determining the population to be sampled
 - Choosing the type of sample
 - Deciding on the sample size

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4 Types of Samples (Fig. 5.1)

	Not Based on Probability	Based on Probability
Sample elements are selected directly without restrictions	Convenience	Simple random
Sample elements are selected according to specific criteria	Purposive	Complex random (systematic, stratified, and cluster)

The systems analyst should use a complex random sample if possible.

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The Sample Size Decision

- Determine the attribute.
- Locate the database or reports in which the attribute can be found.
- Examine the attribute.
- Make the subjective decision regarding the acceptable interval estimate.
- Choose the confidence level.
- Calculate the standard error.
- Determine the sample size.

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Investigation

- The act of discovery and analysis of data
- Hard data
 - Quantitative
 - Reports used for decision making
 - Sales reports
 - Production reports
 - Summary reports
 - Performance reports
 - Records
 - Data capture forms
 - Ecommerce and other transactions
 - Qualitative
 - Email messages and memos
 - Signs or posters on bulletin boards
 - Corporate Web sites
 - Manuals
 - Policy handbooks

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Observation

- Observation provides insight on what organizational members actually do.
- See firsthand the relationships that exist between decision makers and other organizational members
- Can also reveal important clues regarding HCI concerns

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Analyst's Playscript

- Involves observing the decision-makers behavior and recording their actions using a series of action verbs
- Examples:
 - Talking
 - Sampling
 - Corresponding
 - Deciding

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Summary

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Questions?



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